

least one of the operons from the two or more species being discriminated, and wherein the oligonucleotide discriminates between species after hybridization by the use of two or more wash temperatures, at least one of which is above the oligonucleotide's calculated or experimentally determined  $T_m$ ;

- n<sup>2</sup> cont*
- b. hybridizing the oligonucleotide to nucleic acid from the sample;
  - c. exposing the hybridized oligonucleotide to two or more wash temperatures, at least one of which is above the oligonucleotide's calculated or experimentally determined  $T_m$ ; and
  - d. determining the presence or absence of hybridized nucleic acid.
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*n<sup>3</sup>*

26. (Twice Amended) A method for discriminating between species of *Shigella* and *E. coli* or for discriminating among species of *Shigella* and *E. coli* in a sample containing organisms of one or more taxonomic groups comprising:

- a. selecting an oligonucleotide having a sequence from a DNA or RNA operon, wherein the sequence differs by one or more bases from at least one of the operons from the two or more species being discriminated, and wherein the oligonucleotide discriminates between species after hybridization by the use of two or more wash temperatures at or above the oligonucleotide's calculated or experimentally determined  $T_m$ ;
- b. hybridizing the oligonucleotide to nucleic acid from the sample;
- c. exposing the hybridized oligonucleotide to two or more wash temperatures at or above the oligonucleotide's calculated or experimentally determined  $T_m$ ; and
- d. determining the presence or absence of hybridizing nucleic acid,

wherein said oligonucleotide comprises a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3 and SEQ ID NO: 4.

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*n<sup>4</sup>*

28. (Amended) The method of claim 48, wherein an oligonucleotide consisting of SEQ ID NO: 2 is used to discriminate between or among *Shigella* and *Escherichia*.

h4 cont  
29. (Amended) The method of claim 48, wherein an oligonucleotide consisting of SEQ ID NO: 3 is used to discriminate between or among Shigella and Escherichia.

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Please add claims 46-48 as follows:

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--46. A method as in claim 19 wherein the hybridized oligonucleotides are separated into at least two portions and each portion is exposed to a different wash temperature, at least one of which is above the oligonucleotide's calculated or experimentally determined  $T_m$ .

h5  
47. A method as in claim 26 wherein the hybridized oligonucleotides are separated into at least two portions and each portion is exposed to a different wash temperature, at least one of which is above the oligonucleotide's calculated or experimentally determined  $T_m$ .

48. A method of using a nucleic acid probe of claim 25 to discriminate between Shigella and E. coli or among species of Shigella and E. coli which comprises the step of hybridizing said nucleic acid probe.

49. A method of using a kit of claim 43 to discriminate between Shigella and E. coli or among species of Shigella and E. coli which comprises the step of hybridizing the probes of said kit.--

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